Application No: 10/707,342
Date: January 13, 2005
From: Zhidan Li Tolt (Inventor)
Subject: Response to communication on December 16, 2004 concerning election/restrictions requirement

1. The applicant elects inventions I (claims 1-23) with traverse.

2. The examiner argued that the inventions I in claims 1-23 and inventions II in claim 24-36 are distinct from each other, because the device claimed in invention I can be made by substituting the polishing and etching back steps claimed in inventions II with an alternative step such as selective deposition of the embedding material.

3. The applicant disagrees with the above argument based on the following ground: Polishing the surface of the emitter layer is the only method that allows truncating the nano-structures, and therefore, equalizing their lengths. A subsequent etch back of embedding material from the polished surface allows further building of a self-aligned gate around each truncated structure. Selective deposition of the embedding materials or any other processes will not achieve these goals. Having all the nano-structure at the same length, and therefore, an equal gate-to-emitter distance and narrower distribution of aspect ratio for all the nano-structure emitters, is one of the major advantages of the device claimed in inventions I. Paragraphs [0006], [0015], [0017], [0024] and [0027] in the application describe the details of the above argument.

A further argument is that with an array of randomly positioned nano-structures of a density of $10^8/cm^2$, to embed a major portion of them lengthwise and leave only the small top part uncovered is impossible to implement even with the most state-of–art fabrication technologies, regardless selective deposition or any other methods.

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